

2014 - JCR Evaluation Form

SPECIES: Moose
 HERD: MO620 - LANDER
 HUNT AREAS: 2, 30, 39

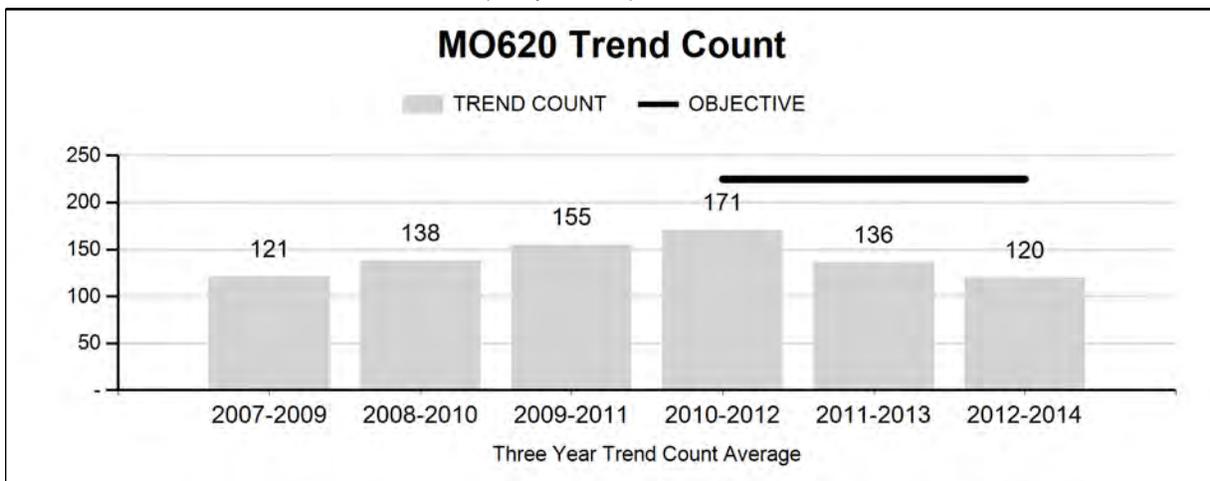
PERIOD: 6/1/2014 - 5/31/2015
 PREPARED BY: STAN HARTER

	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Trend Count:	142	113	175
Harvest:	8	8	10
Hunters:	11	10	10
Hunter Success:	73%	80%	100%
Active Licenses:	11	10	10
Active License Success	73%	80%	100%
Recreation Days:	98	129	150
Days Per Animal:	12.2	16.1	15
Males per 100 Females:	69	49	
Juveniles per 100 Females	36	33	

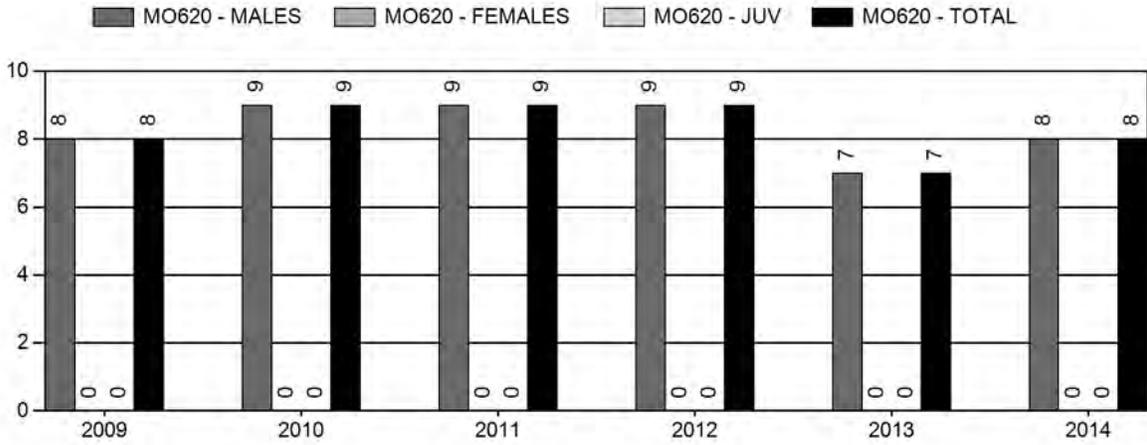
Trend Based Objective ($\pm 20\%$) 225 (180 - 270)
 Management Strategy: Special
 Percent population is above (+) or (-) objective: -49.8%
 Number of years population has been + or - objective in recent trend: 3

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

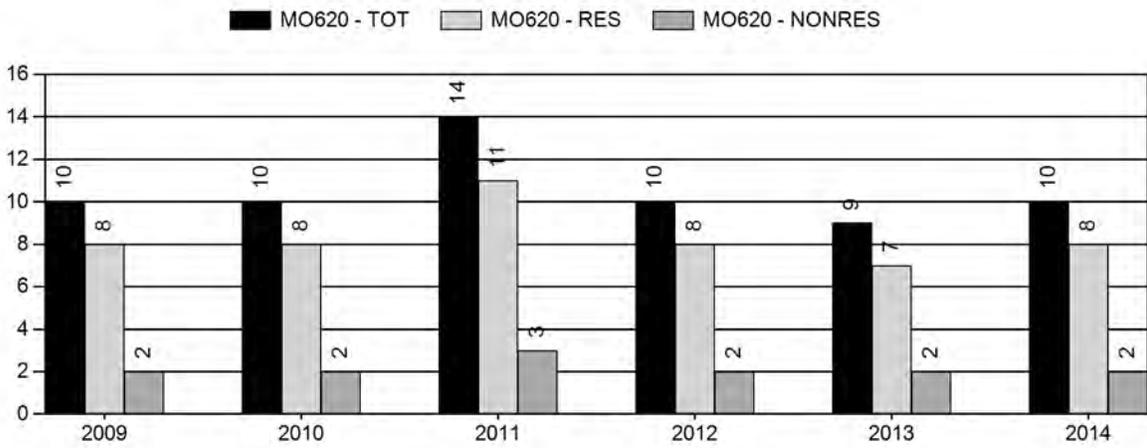
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



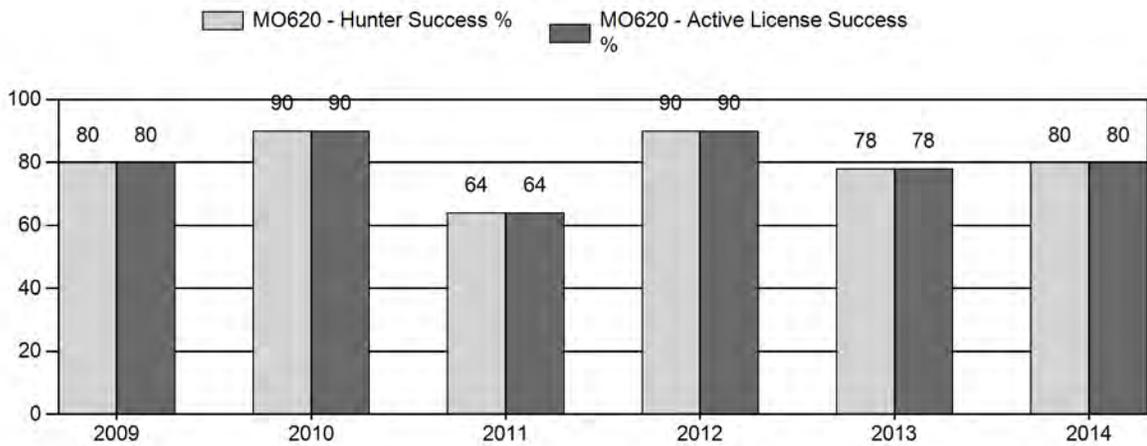
Harvest



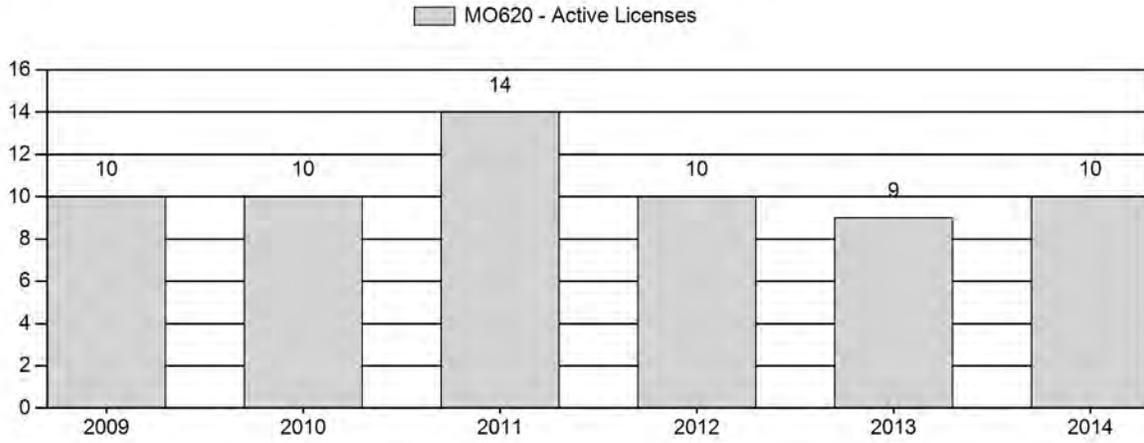
Number of Hunters



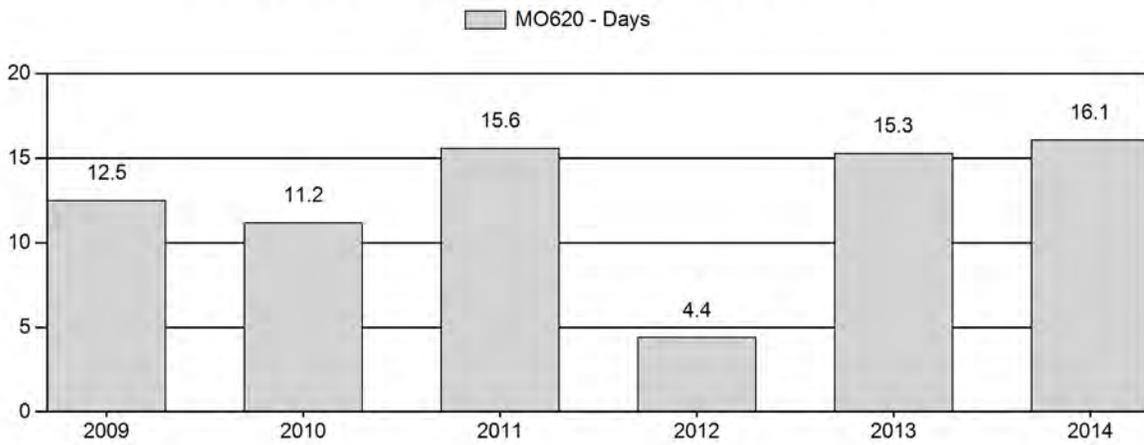
Harvest Success



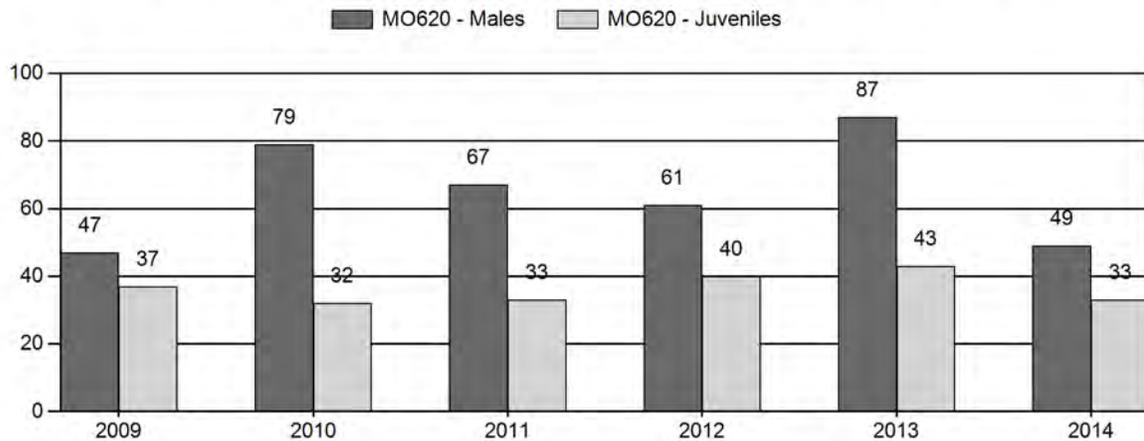
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2009 - 2014 Postseason Classification Summary

for Moose Herd MO620 - LANDER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	0	0	0	24	26%	51	54%	19	20%	94	234	0	0	47	± 13	37	± 11	25
2010	0	0	0	78	37%	99	47%	32	15%	209	281	0	0	79	± 9	32	± 5	18
2011	0	0	0	54	33%	81	50%	27	17%	162	263	0	0	67	± 11	33	± 7	20
2012	0	0	0	43	30%	70	50%	28	20%	141	0	0	0	61	± 12	40	± 9	25
2013	0	0	0	40	38%	46	43%	20	19%	106	0	0	0	87	± 0	43	± 0	23
2014	0	0	0	30	27%	61	55%	20	18%	111	0	0	0	49	± 0	33	± 0	22

2015 HUNTING SEASONS
Lander Moose Herd Unit (MO 620)

HUNT AREA	TYPE	Season Dates		Quota	LIMITATIONS
		OPENS	CLOSES		
2	1	Oct. 1	Nov. 20	5	Limited quota; antlered moose
30	1	Oct. 1 Nov. 1	Oct. 31 Nov. 20	5	Limited quota; antlered moose Unused Area 30 Type 1 licenses also valid in Area 2
39		CLOSED			

2, 30 Sept. 1 Sept. 30 Archery Season; Refer to license type

No Changes from 2014

MANAGEMENT EVALUATION

Current Management Objective: Mid-winter Trend Count = 225

Management Strategy: Special (50-70 bull/100 cows)

2014 Trend Count = 113

Most Recent 3-year Running Average Trend Count = 120

Herd Unit Issues/Population

This population has experienced a general decline beginning in 1995. Recent trend counts show a general upward trend since 2004, peaking in 2010, an excellent year for detecting moose with near optimal snow cover and flight conditions. Starting in 2011, sample sizes have declined rather sharply, due in part to less favorable snow cover and/or flight conditions. While this decline is possibly only the result of reduced detection of moose, it may also indicate a real decline in moose numbers. Calf/cow ratios were seemingly on the rise, but with such small sample sizes, this statistic could be misleading, especially in light of several hunters and other members of the public and Department reporting seeing few cow moose with calves at their sides the past few years.

Moose throughout their range are susceptible to a variety of diseases, parasites, and other maladies. Presence of carotid artery worms (*Elaeophora schneideri*) has been increasingly documented in most herd units in Wyoming recently. However, at least 2 moose from the Lander Herd Unit were sampled for this parasite in fall 2014, with no worms found. In fact, no presence of *Elaeophora* worms has been detected in this herd unit since it was first discovered in 1999 and 2000. No confirmed cases of winter ticks have been reported in bio-year 2014, but most cases of winter ticks don't manifest themselves until late winter or early spring.

Attempts to develop a spreadsheet model for Lander Moose were not successful. In the absence of an accurate, or even usable, population estimate for the Lander Moose Herd Unit, a change to an alternative objective was necessary. Mid-winter trend counts, collected as classification

survey data were deemed the best alternative, and seem to be a reliable trend indicator as we fly all available winter ranges annually. Therefore, the management objective was changed in 2013 to a trend count of 225 moose (range of 180-270 moose). In all, 113 moose were counted in the Lander Herd Unit in 2014/15 trend counts, providing a 3-year running average of 120 moose.

Field Data

Moose winter range trend count/classification surveys were conducted in combination with elk and deer classifications, using a Bell Jet Ranger helicopter along the Sweetwater River and major streams along the southern Wind River mountains. Personnel from the Pinedale Region flew Area 30 west of the Sweetwater River with Savage Air’s Bell 47 Soloy helicopter. Most moose in Area 2 were observed in traditional willow riparian areas or aspen stands. However, due to very light snow cover in most of Area 2 and increasing winds affecting flight safety, we did not observe as many moose as we anticipated in several locations, particularly in the Middle Popo Agie drainage, Maxon Basin, and Pass Creek burn areas. The Area 2 classification sample of 91 moose was 50% above the 2013 sample, but remains below the average of 96 moose since 2004 (range 60-145). The observed post-season calf/cow ratio of 33J/100F was just below the previous 5-year herd unit average and the observed bull/cow ratio of 49M/100F was the lowest since 2010 (Figure 1). Due to a sizeable increase in the number of cows in the sample, both ratios fluctuated more widely than did the actual number of calves or bulls. This is a common issue for this herd unit, with very low sample sizes even in “good” years.

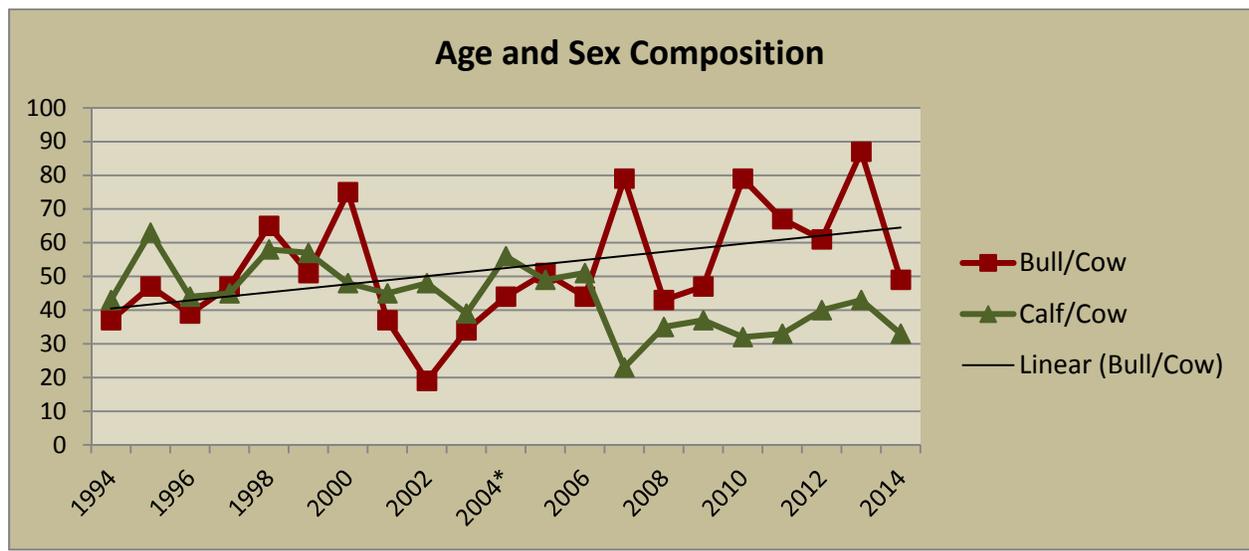


Figure 1. Age and sex composition for Lander Moose, 1994 – 2014.

Weather/Habitat

Drought conditions were extreme to exceptional for most of 2011-13, beginning with minimal snowfall in winter 2011-12 and continuing with almost no precipitation during spring and summer 2012. In April 2013, a series of several late winter/early spring snow storms produced heavy snow through early May throughout the Lander Moose Herd Unit. These storms were extremely helpful in lessening the effects of drought, yet they only helped change the drought status from Extreme to Severe. Drought returned in summer 2013, with only 0.34 and 0.2 inches of precipitation recorded in Lander and Jeffrey City respectively from June 1 to September 1.

This inhibited production in herbaceous and shrub species across the Lander herd unit, although some improvement over 2012 conditions was noted. Rain and snow returned to the area in September and October 2013, with nearly 300% of “normal” precipitation recorded in Lander and Jeffrey City with warm temperatures between early storms. Although winter 2013-14 had lower than average snowfall, the increase in soil moisture from the fall 2013 precipitation carried over into spring and was followed by good rainfall throughout most of the herd unit over summer 2014, leading to improvement in vegetation condition. Winter 2014-15 was fairly mild, with above average temperatures and slightly below average snowfall/precipitation. Precipitation from April 1 through early May 2015 has been above average in Lander, and ahead of last year’s pace. We anticipate habitat conditions will continue to improve as a result.

Future management of Lander Moose will also include evaluation and monitoring of habitat conditions on key moose winter ranges. Willow transects were measured in fall 2013, to attempt gauging moose winter habitat use and condition. A modified live/dead (LD) index was initiated at 2 of the transect sites previously monitored by Hanna, et al. (1989). However, the amount of time required to conduct the modified LD monitoring seems excessive and alternatives are being considered. Additional transects will be established to detect winter habitat use in areas such as the Pass Creek Burn of 2002 and elsewhere if necessitated by recent updates to seasonal ranges. Habitat management and monitoring strategies are being deliberated by the Department’s Moose Working Group, and we are awaiting direction from them before moving forward with establishing transects. In the absence of specific vegetation monitoring, we will visit several old monitoring locations in 2015 and establish photo points, as well as at selected new locations.

Harvest Data

Hunter success was only 80% in 2014, but average age and antler width of harvested bulls, along with numbers of moose reported by moose and elk hunters, has generally improved over recent years, especially in Hunt Area 2. In 2014, ten hunters harvested 8 moose (5 in Area 2 and only 3 in Area 30), and the number of days per moose harvested increased to 16.1 days, 4 days longer than the previous 5-year average. Possibly due to more time spent in the field by each hunter, the number of moose observed by hunters increased from 80 in 2013 to 126 in 2014, with 86 seen in Area 2 and 40 in Area 30. At least one unsuccessful hunter from Area 30 reported not harvesting a bull, due to his own choice to find a large moose. No hunters from Area 30 reported hunting or harvesting moose in November in Area 2, despite that option being available.

According to the tooth aging report, teeth were submitted from 6 of the 8 harvested bull moose, with one set the lab was unable to age. The average age of 5 harvested bulls via cementum annuli was 5 years (range 2 – 10 years). This was identical to the 2013 season, and higher than that of several prior hunting seasons. Antler width averaged 35 inches (range 14 – 45 inches) for the 6 moose from which we received width measurements.

Management Summary

Hunting seasons remain conservative in 2015 with 5 Type 1 Antlered Moose licenses in Hunt Area 2 and with 5 Type 1 licenses in Hunt Area 30. The bull/cow ratio has been increasing in recent years, but experienced a steep decline this year. Also, calf/cow ratios remain low (average of 36/100 since 2006, range 32 – 51) and with lower trend counts, we don't believe this population can yet sustain an increase in bull harvest. Hunter success has averaged less than 80% in the past several years, in spite of increases in bull/cow ratios.

Given relatively poor detection of moose, it is likely the actual number of moose is much higher than that observed in the 2014 classification/trend survey. Regardless, the population appears to be experiencing an increasing trend since 2004 (Figure 2). However, decreasing counts since 2010 cause concern this population may once again be declining. Nonetheless, even with marginal flying and observation conditions, the 2014 trend count was slightly higher than in 2013.

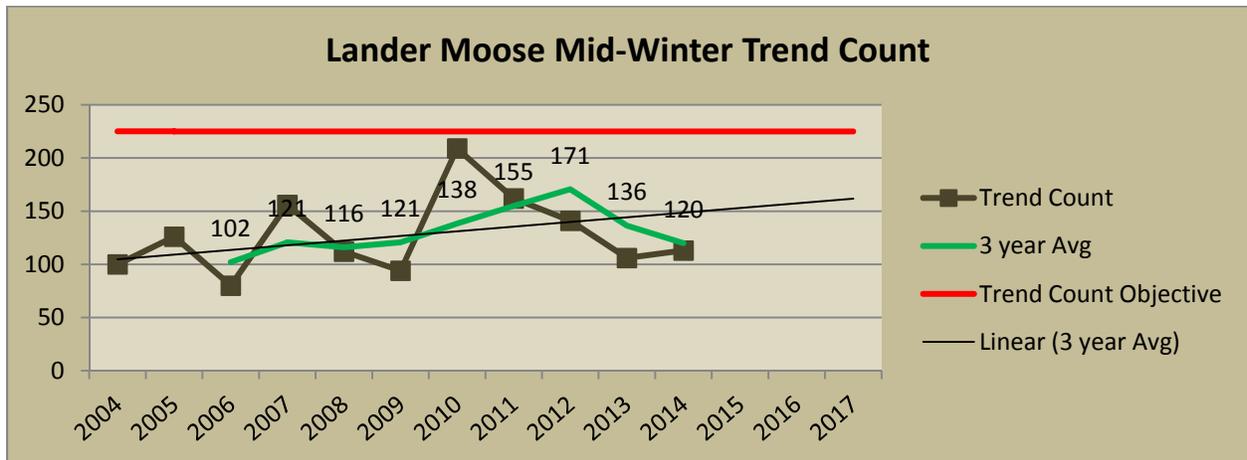
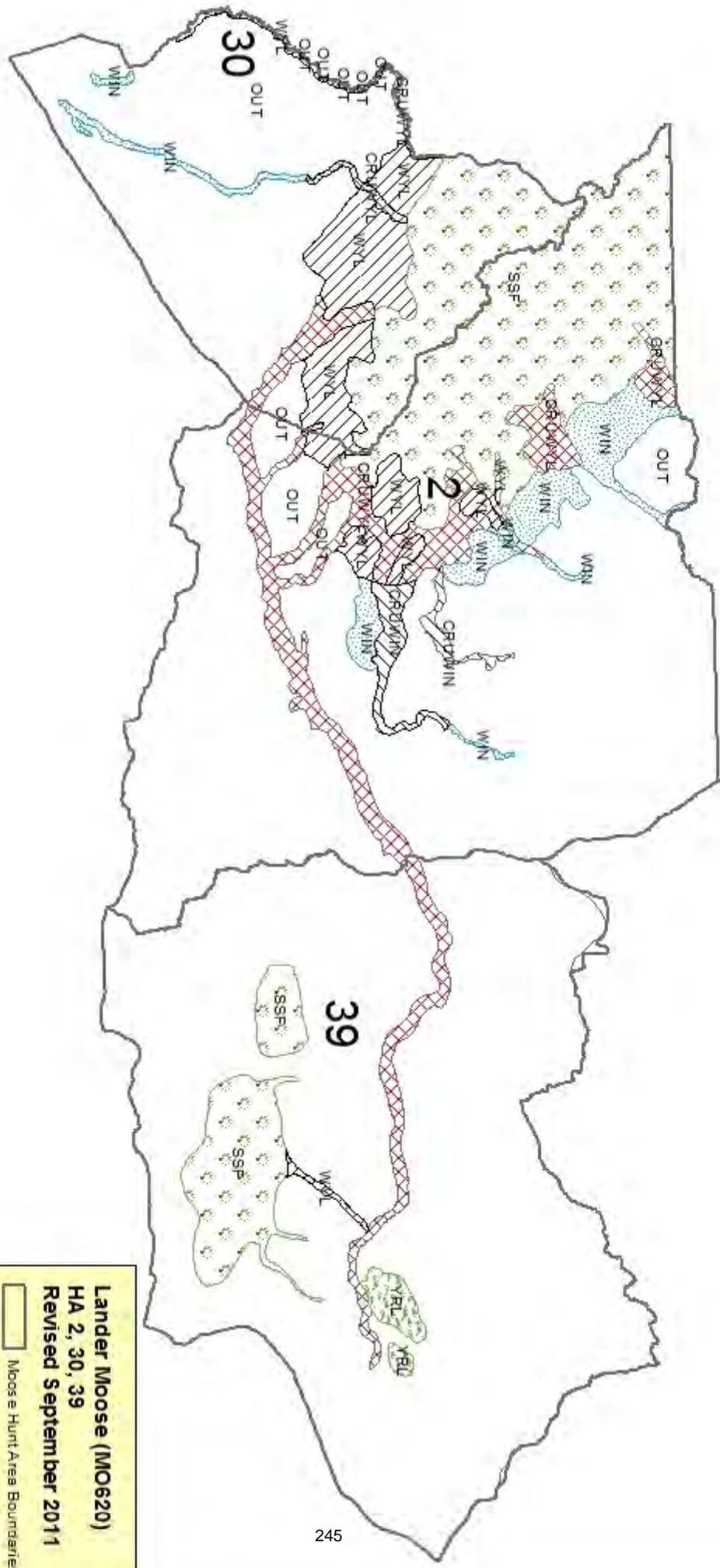


Figure 2. Mid-winter trend count data for Lander Moose (2004-2014) with projected trend through 2017 based on 3-year running average.

In response to hunters reporting difficulty in finding and harvesting moose in Area 30 in recent years, Area 30 hunters will continue to be allowed to hunt in Area 2 after November 1, if they are unsuccessful in Area 30 during October. This was done the past 2 seasons, but none of the Area 30 hunters have reported hunting or harvesting moose in Area 2.

The 2015 seasons should provide a quality experience for moose hunters and improved hunter statistics. We expect hunter success to be 100%, resulting in a harvest of 10 bulls.



Lander Moose (MO620)
HA 2, 30, 39
Revised September 2011

	Moose Hunt Area Boundaries
	Moose Seasonal Range
	CRUWIN
	CRUWYL
	OUT
	SSP
	WIN
	WYL
	YRL

2014 - JCR Evaluation Form

SPECIES: Moose
 HERD: MO621 - DUBOIS
 HUNT AREAS: 6

PERIOD: 6/1/2014 - 5/31/2015

 PREPARED BY: GREG
 ANDERSON

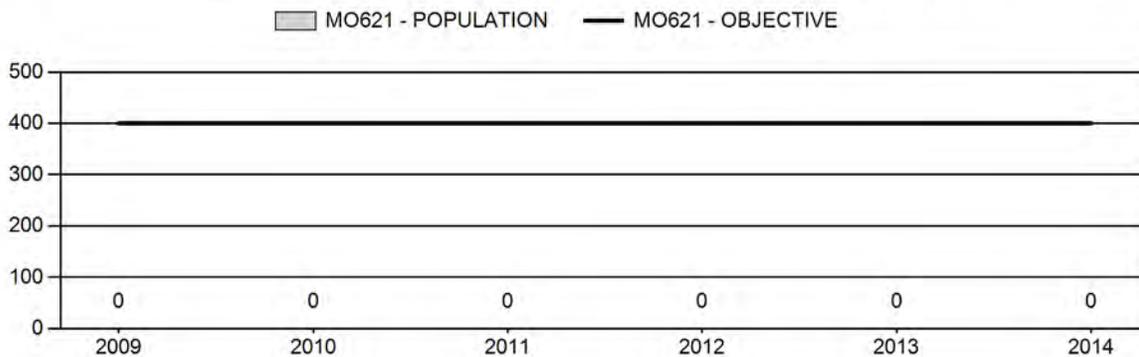
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Population:	0	N/A	N/A
Harvest:	5	5	5
Hunters:	5	5	5
Hunter Success:	100%	100%	100 %
Active Licenses:	5	5	5
Active License Success:	100%	100%	100 %
Recreation Days:	36	78	65
Days Per Animal:	7.2	15.6	13
Males per 100 Females	0	0	
Juveniles per 100 Females	0	0	

Population Objective (± 20%) : 400 (320 - 480)
 Management Strategy: Special
 Percent population is above (+) or below (-) objective: N/A%
 Number of years population has been + or - objective in recent trend: 0
 Model Date: 1/1/2015

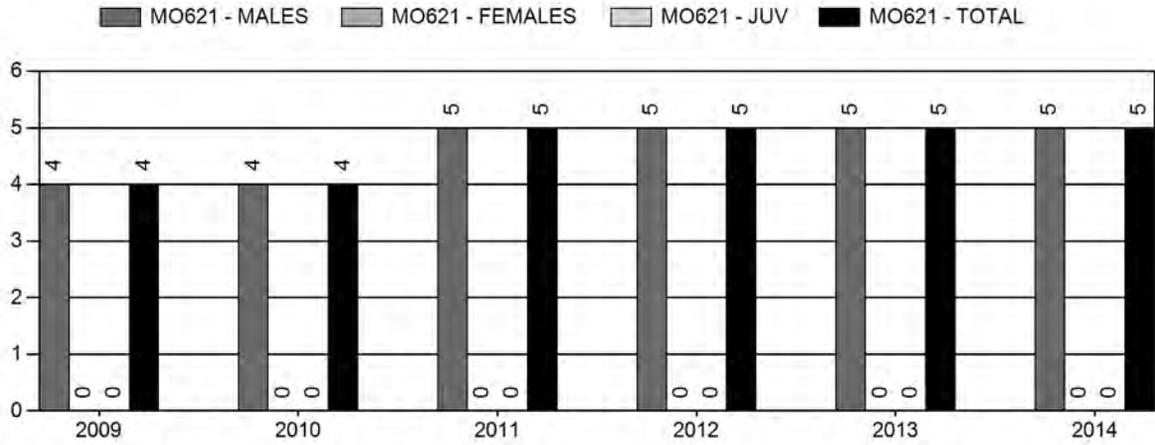
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%
Total:	0%	0%
Proposed change in post-season population:	0%	0%

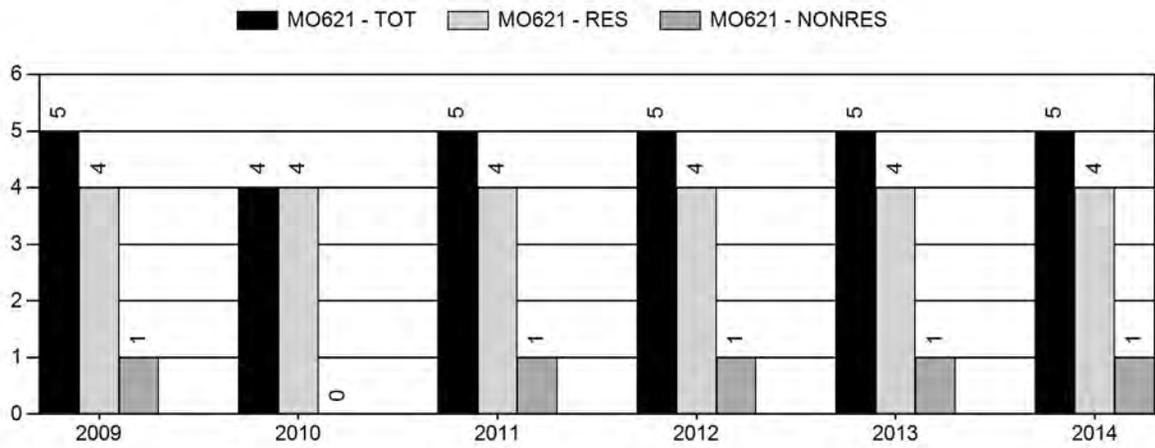
Population Size - Postseason



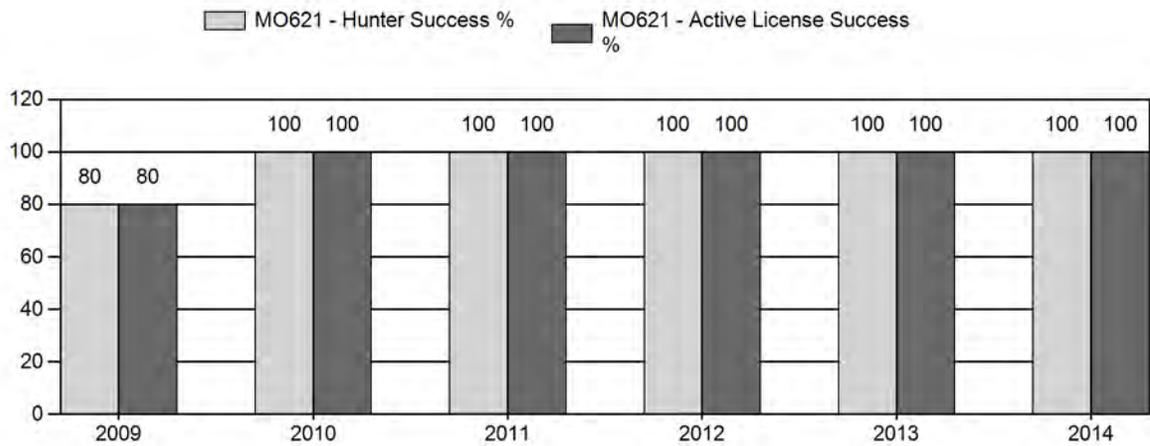
Harvest



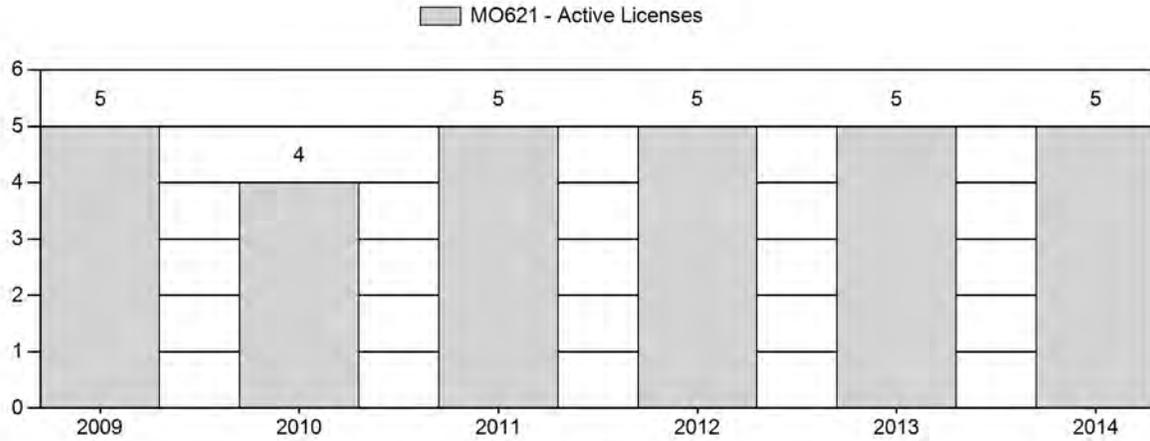
Number of Hunters



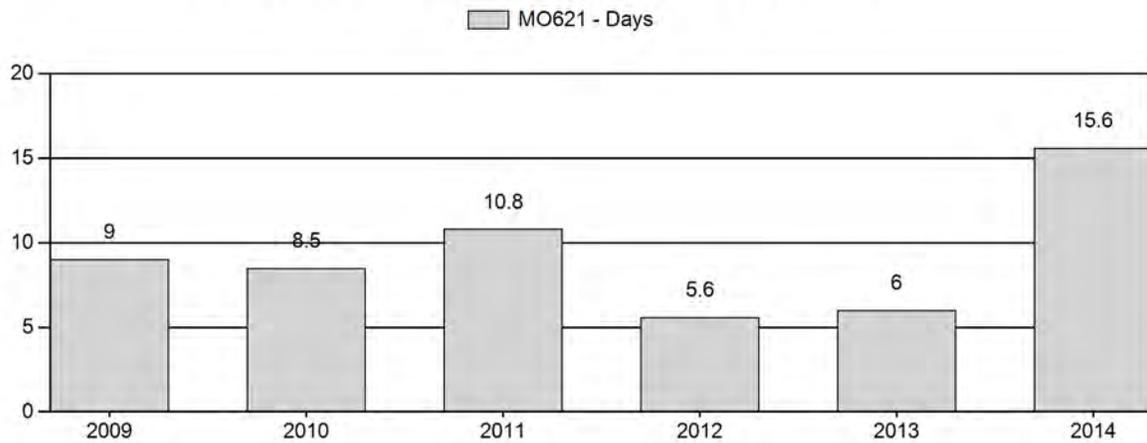
Harvest Success



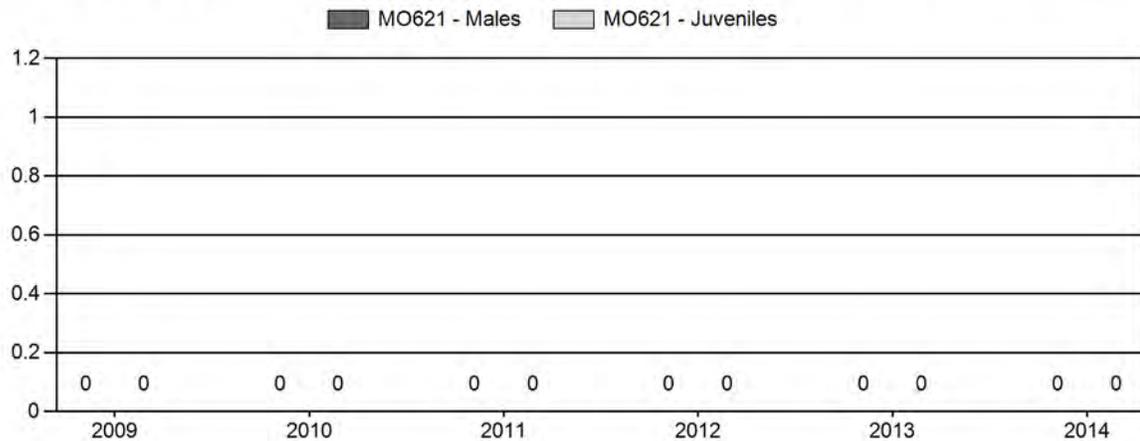
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



**2015 HUNTING SEASONS
DUBOIS MOOSE (MO 621)**

Hunt Area	Type	Season Dates		Quota	Limitations
		Opens	Closes		
6	1	Oct. 1	Nov. 20	5	Limited quota; antlered moose
Archery		Sep. 1	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2014
6		
Total		

Management Evaluation

Current Management Objective: 400

Management Strategy: Special

2014 Postseason Population Estimate: unknown

2015 Proposed Postseason Population Estimate: unknown

Management Issues

The Dubois moose herd has a postseason population size objective of 400 and a special management designation. The objective has been in place since 1994. Despite having a numerical objective, the herd has never been modeled effectively and no model has been constructed over the past 10 years due to the lack of demographic data. Given the low density of moose in the herd unit, managers stopped collecting demographic data over the past several years due to costs relative to the amount of data collected. To maintain a small amount of data useful in analyzing long term population trends, managers began collecting winter count data on 5 select wintering sites in the herd unit in January, 2015.

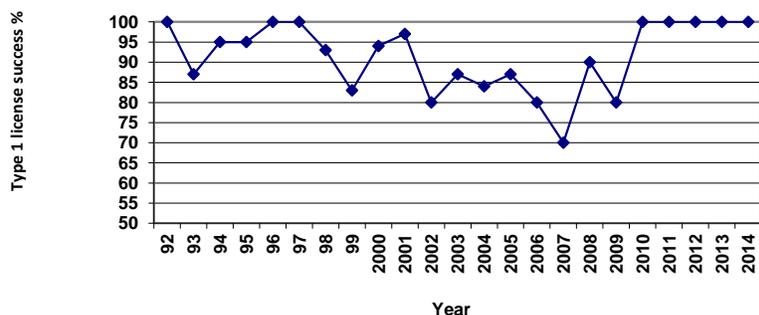
Habitat/Weather

No specific data regarding moose habitat is collected within this herd unit on an annual basis. Vegetation monitoring transects on both sheep and elk winter range indicated herbaceous vegetation production was quite good in 2014. Good moisture and growing conditions should have resulted in high feed production for moose on both low elevation winter sites and mid-elevation summer range. Moose observed throughout winter appeared to be in excellent body condition. It is likely this population has been and will continue to be impacted by large tracts of beetle killed timber across the herd unit. The effects of this natural successional change on moose in this herd unit should manifest themselves over the next decade.

Harvest Data/Population

Anecdotal evidence suggests this population declined significantly over the past decade. As the population declined it became progressively more difficult and expensive to collect a reasonable amount of demographic data. Concurrently, harvest pressure was reduced and the small amount of harvest data collected annually became less useful for making management decisions. The Department has not actively managed this herd based on the postseason population size objective for a number of years due to the lack of demographic data and the cost prohibitive nature of collecting an appropriate amount of classification data. Instead, personnel have used anecdotal information as well as Type 1 license success data to formulate hunt season recommendations. For the past 5 years recreational opportunity has been provided by issuing 5 Type 1 licenses annually. The reduction to 5 Type 1 licenses occurred in 2009 in response to declining success on over the previous decade (Fig. 1). Success on the Type 1 licenses has been 100% each of the last 5 years including 2014.

Figure 1. Type 1 license success in the Dubois Moose Herd



In January, 2015, personnel began counting moose at five distinct wintering areas within this herd unit (Table 1). In theory, these counts will provide a useful year-to-year comparison in the future. Significant population changes should be evident based on the presence of more or less moose at these sites.

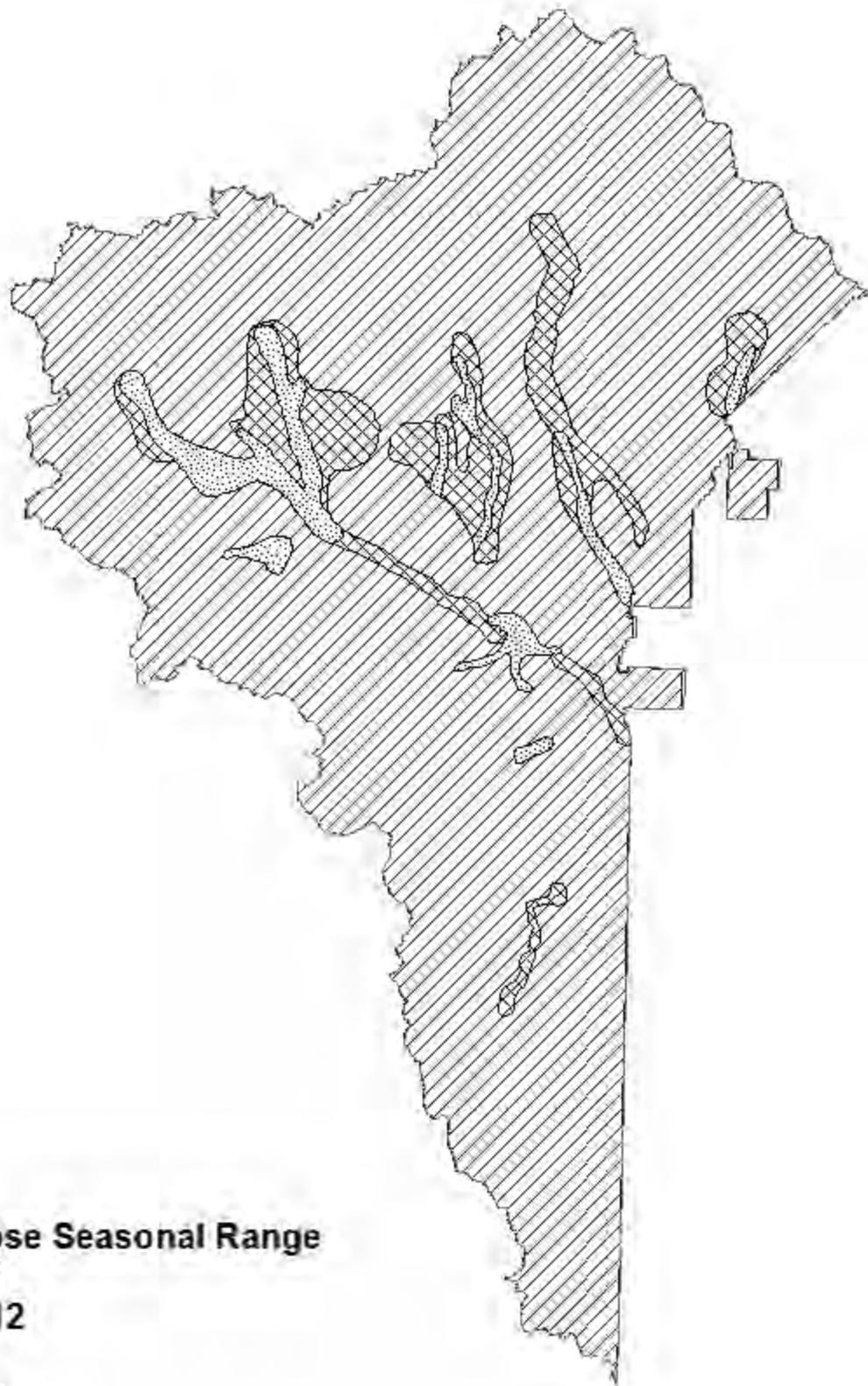
Table 1. Moose numbers at select wintering sites in the Dubois Moose Herd.

Location	2015
East Fork Basin	6
Lower Horse Creek	3
Double Cabin	2
Upper Dunoir	10
Upper Wind River	8
Total	29

Management Summary

While hunter success has been high the past 5 years, there is no indication the moose population increased dramatically. A significant population increase should be indicated by greater moose numbers on key, highly visible winter ranges throughout the herd unit. Several years of data collection at the sites listed in Table 1 should provide some anecdotal information on the moose

population in the area. Given no good information suggesting population growth in this herd unit, the 2015 hunt season will remain unchanged with the issuance of 5 Type 1 licenses.



**Dubois Moose Seasonal Range
Hunt Area 6
Revised 2012**

-  CRUWYL
-  SSF
-  WYL



